

CLAIMS

[1] A variable gain voltage/current converter circuit comprising:
an input section active element having an input terminal, an
output terminal, and a ground terminal for performing voltage/current
conversion;

5 a potential control circuit for controlling a conversion gain of said
input section active element based on a potential at the output terminal of
said input section active element;

an output section voltage/current converter circuit for generating a
current corresponding to a voltage signal generated from said potential

10 control circuit; and

a current compensation circuit connected to the output terminal of
said input section active element for generating a DC current in accordance
with the amount of DC current which flows from the output terminal of said
input section active element to said input section active element.

15

[2] The variable gain voltage/current converter circuit according to
claim 1, wherein:

 said potential control circuit comprises:

 a voltage comparator circuit having a first input terminal applied
5 with a potential control signal, and a second input terminal connected to the
output terminal of said input section active element; and

 an intervening active element having an input terminal connected
to the output terminal of said voltage comparator circuit, and an output
terminal connected to the output terminal of said input section active element

10 for performing voltage/current conversion.

[3] The variable gain voltage/current converter circuit according to claim 2, wherein said voltage comparator circuit includes an operational amplifier.

[4] The variable gain voltage/current converter circuit according to any of claims 1 to 3, wherein said current compensation circuit includes an active element which has an input terminal applied with a current compensation voltage signal, and an output terminal connected to the output terminal of said input section active element.

[5] The variable gain voltage/current converter circuit according to any of claims 2 to 4, wherein a circuit for generating the current compensation voltage signal comprises:

- an operational amplifier applied with a reference voltage signal at a first input terminal, and applied with an input voltage signal of a duplication circuit of said intervening active element at a second input terminal; and
- an active element having an input terminal connected to the output terminal of said operational amplifier, said output terminal being connected to an output terminal of the duplication circuit of said input section active element.

[6] The variable gain voltage/current converter circuit according to any of claims 1 to 5, wherein said active element forming part of said variable gain voltage/current converter circuit includes a field effect transistor or a bipolar transistor.

[7] A filter circuit comprising:

 a combinational circuit of the variable gain voltage/current converter circuit according to any of claims 1 to 6, and a capacitive element; and

5 means for adjusting a pass frequency band by changing the gain of said variable gain voltage/current converter circuit.